Claims

[c1] 1. A method for providing custom probe arrays of biological molecules, comprising the acts of:
receiving a user selection of one or more probe set identifiers that each identify one or more potential probes;
determining verified probe sets of verified probes corresponding to the probe set identifiers;
generating a custom probe array design based, at least in part, upon the verified probe sets;
enabling for display to the user a representation of one or more aspects of the custom probe array design via one or more graphical user interfaces enabled to receive a user selection specifying acceptance, modification, or rejection of the custom probe array design; and
providing to the user one or more probe arrays based on the probe array design and responsive to the user specification of acceptance or modification, wherein at least one of the probe arrays is constructed and arranged to detect or measure any one or any combination of gene expression, genotype, SNP, haplotype, or targets including antibodies, cell membrane receptors, monoclonal antibodies and antisera reactive with specific antigenic determinants, drugs, oligonucleotides, nucleic acids, peptides, proteins, cofactors, lectins, sugars, polysaccharides, cells, cellular membranes, or organelles.

[c2] 2. The method of claim 1, wherein:
one or more of the probe arrays is constructed and arranged to diagnose a disease or medical condition.

[c3] 3. The method of claim 1, wherein:
the probe array comprises a synthesized or spotted array.

[c4] 4. The method of claim 1, wherein:
the probe array comprises probes capable of hybridizing with biological molecules.

[c5] 5. A method for providing custom probe arrays, comprising the acts of:

receiving a user selection of one or more probe set identifiers that identify one or more potential probes;

determining verified probe sets of verified probes corresponding to the probe set identifiers;

generating a custom probe array design based, at least in part, upon the verified probe sets;

enabling for display to the user a representation of one or more aspects of the custom probe array design via one or more graphical user interfaces enabled to receive a user selection specifying acceptance, modification, or rejection of the custom probe array design; and

providing to the user one or more probe arrays based on the probe array design and responsive to the user specification of acceptance or modification.

[c6] 6. The method of claim 5, wherein:
the user selection is received over the Internet.

[c7] 7. The method of claim 5, wherein:
the probe set identifiers comprise sequence information.

[c8] 8. The method of claim 5, wherein:
the probe set identifiers are selected by the user from a predetermined list.

[c9] 9. The method of claim 8, wherein:
each item on the list corresponds to either an EST, a gene, a splice variant of a gene, or a protein.

[c10] 10. The method of claim 5, wherein:
the verified probe sets are determined based, at least in part, on any one or any combination of frequency, length, or position of probe sequence repeats; probe sequence length, thermodynamic properties, energetic parameters, or uniqueness; or one or more characteristics of target molecules specified by the user for use with the probe array.

[c11] 11. The method of claim 5, wherein:
the act of generating further is based, at least in part, on probe array format factors.

[c12] 12. The method of claim 11 , wherein:
some or all of the probe array format factors are provided by the user and the act of receiving includes receiving user-selected probe array format factors.

[c13] 13. The method of claim 11 , wherein:
the probe array format factors include any one or any combination of the number of probe sets; a shape or one or more dimensions of a probe; one or more dimensions of active or inactive areas of the probe array; one or more indicators of geographic dispersion of probe sets on the probe array; nominal, maximum or minimum number of probes or probes in a probe set representing one or more EST, gene, splice variant of a gene, or protein; substrate material or design; or design of a hybridization chamber or microfluidics body encompassing or associated with the probe array.

[c14] 14. The method of claim 13 , wherein:
the substrate material includes one or more of glass, silicon, silica, optical fibers, beads, resins, gels, or microspheres.

[c15] 15. The method of claim 13 , wherein:
the act of generating further includes modifying or rejecting one or more user-selected probe array format factors.

[c16] 16. The method of claim 5 , wherein:
the graphical user interface is provided over a network.

[c17] 17. The method of claim 16 , wherein:
the act of determining further includes modifying or rejecting one or more user-selected probe set identifiers; and
the act of enabling for display includes enabling for display a representation of one or more factors or reasons related to the modifying or rejecting of the user-selected probe set identifiers.

[c18] 18. The method of claim 5 , wherein:
the probe arrays include synthesized or spotted probe arrays.

[c19] 19. A system for providing custom probe arrays, comprising:

an input manager constructed and arranged to receive a user selection of one or more probe set identifiers that identify one or more potential probes;
a gene or EST verifier constructed and arranged to determine one or more verified probe sets of verified probes corresponding to the probe set identifiers;
a probe array generator constructed and arranged to generate a custom probe array design based, at least in part, upon the verified probe sets; and
a user data processor constructed and arranged to enable for display a representation of one or more aspects of the custom probe array design via one or more graphical user interfaces that are further enabled to receive a user selection specifying acceptance, modification, or rejection of the custom probe array design, and further is constructed and arranged to provide to the user one or more probe arrays based on a user selection specifying acceptance or modification of the probe array design.

[c20] 20. The system of claim 19, wherein:
the user selection is received over the Internet.

[c21] 21. The system of claim 19, wherein:
the probe set identifiers comprise sequence information.

[c22] 22. The system of claim 19, wherein:
the probe set identifiers are selected by the user from a predetermined list.

[c23] 23. The system of claim 22, wherein:
each item on the list corresponds to either an EST, a gene, a splice variant of a gene, or a protein.

[c24] 24. The system of claim 19, wherein:
the verified probe sets are determined based, at least in part, on any one or any combination of frequency, length, or position of probe sequence repeats; probe sequence length, thermodynamic properties, energetic parameters, or uniqueness; or one or more characteristics of target molecules specified by the user for use with the probe array.

[c25] 25. The system of claim 19, wherein:
the probe array generator is further constructed and arranged to generate the

custom probe array design based, at least in part, on probe array format factors.

[c26] 26. The system of claim 25 , wherein:
the input manager is further constructed and arranged to receive some or all of the probe array format factors from the user, including one or more user-selected probe array format factors.

[c27] 27. The system of claim 25 , wherein:
the probe array format factors include any one or any combination of the number of probe sets; a shape or one or more dimensions of a probe; one or more dimensions of active or inactive areas of the probe array; one or more indicators of geographic dispersion of probe sets on the probe array; nominal, maximum or minimum number of probes or probes in a probe set representing one or more EST, gene, splice variant of a gene, or protein; substrate material or design; or design of a hybridization chamber or microfluidics body encompassing or associated with the probe array.

[c28] 28. The system of claim 27 , wherein:
the substrate material includes one or more of glass, silicon, silica, optical fibers, beads, resins, gels, or microspheres.

[c29] 29. The system of claim 27 , wherein:
the probe array generator is further constructed and arranged to modify or reject one or more user-selected probe array format factors.

[c30] 30. The system of claim 19 , wherein:
the graphical user interface is provided over a network.

[c31] 31. The system of claim 30 , wherein:
the gene or EST verifier is further constructed and arranged to modify or reject one or more user-selected probe set identifiers; and
the user data processor is further constructed and arranged to enable for display a representation of one or more factors or reasons related to the modifying or rejecting of the user-selected probe set identifiers.

[c32] 32. The system of claim 19 , wherein:
the probe arrays include synthesized or spotted probe arrays.

[c33] 33. A genomic portal system for providing custom probe arrays, comprising:
an application server comprising an input manager constructed and arranged to receive a user selection of one or more probe set identifiers that identify one or more potential probes, a gene or EST verifier constructed and arranged to determine one or more verified probe sets of verified probes corresponding to the probe set identifiers, a probe array generator constructed and arranged to generate a custom probe array design based, at least in part, upon the verified probe sets, and a user data processor constructed and arranged to enable for display a representation of one or more aspects of the custom probe array design via one or more graphical user interfaces that are further enabled to receive a user selection specifying acceptance, modification, or rejection of the custom probe array design; and
a network server comprising an output manager constructed and arranged to provide to the user one or more probe arrays based on the probe array design.

[c34] 34. The system of claim 33 , wherein:
the network server further comprises an input manager constructed and arranged to receive user input; and
the system further comprises one or more user computers constructed and arranged to enable a user to provide the user selection of one or more probe set identifiers to the network server.

[c35] 35. The system of claim 33 , wherein:
the output manager identifies the one or more probe arrays to the user via the internet.

[c36] 36. A method for processing customer orders for probe arrays, comprising the acts of:
receiving a user selection of one or more probe arrays, or one or more probe set identifiers corresponding to one or more probe arrays, wherein the one or more probe arrays include a first probe array type;
receiving a user order for a first number of the first probe array type;

comparing the first number to a nominal lot size corresponding to the first probe array type and to a number of unfulfilled orders for the first probe array type;

adding the first number to the unfulfilled orders to generate a total; and

enabling the user to be provided with the first number of probe arrays of the first probe array type when the total is within a production-lot range.

[c37] 37. The method of claim 36, wherein:

the production-lot range is limited to a single value equal to the nominal lot size.

[c38] 38. The method of claim 36, wherein:

the user order includes a conditional offer to purchase.

[c39] 39. The method of claim 38, wherein:

the conditional offer is contingent on price or projected delivery time.

[c40] 40. The method of claim 36, wherein:

the nominal lot size is predetermined.

[c41] 41. The method of claim 36, wherein:

the nominal lot size is adjustable.

[c42] 42. The method of claim 36, further comprising the act of:

receiving a bid from the user for a price that the user is willing to pay.

[c43] 43. The method of claim 36, wherein:

the user selection is received over the Internet.

[c44] 44. The method of claim 36, wherein:

the probe set identifiers comprise sequence information.

[c45] 45. The method of claim 36, wherein:

the probe set identifiers are selected by the user from a predetermined list.

[c46] 46. The method of claim 45, wherein:

each item on the list corresponds to either an EST, a gene, a splice variant of a gene, or a protein.

[c47] 47. The method of claim 36, wherein:
one or more of the first number of probe arrays is constructed and arranged to diagnose a disease or medical condition.

[c48] 48. The method of claim 36, wherein:
one or more of the first number of probe arrays comprises a synthesized or spotted array.

[c49] 49. The method of claim 36, further comprising the act of:
providing the user with the first number of probe arrays.

[c50] 50. A method for processing customer orders for shared custom probe arrays, comprising the acts of:
receiving a user selection of one or more probe set identifiers that identify one or more potential probes;
determining a first number of verified probe sets corresponding to the probe set identifiers;
comparing the first number to a nominal custom probe set size and to a number of unfulfilled orders for probe sets;
adding the first number to the unfulfilled orders to generate a total; and
enabling the user to be provided with the first number of verified probe sets on the shared custom probe array when the total is within a production range of probe sets.

[c51] 51. The method of claim 50, wherein:
the production range is limited to a single value equal to the nominal custom probe set size.

[c52] 52. The method of claim 51, wherein:
the user order includes a conditional offer to purchase.

[c53] 53. The method of claim 52, wherein:
the conditional offer is contingent on price or projected delivery time.

[c54] 54. The method of claim 50, wherein:
the nominal custom probe set size is predetermined.

[c55] 55. The method of claim 50, further comprising the act of:
receiving a bid from the user for a price that the user is willing to pay.

[c56] 56. The method of claim 50, wherein:
the user selection is received over the Internet.

[c57] 57. The method of claim 50, wherein:
the probe set identifiers comprise sequence information.

[c58] 58. The method of claim 50, wherein:
the probe set identifiers are selected by the user from a predetermined list.

[c59] 59. The method of claim 58, wherein:
each item on the list corresponds to either an EST, a gene, a splice variant of a gene, or a protein.

[c60] 60. The method of claim 50, wherein:
the shared custom probe array is constructed and arranged to diagnose a disease or medical condition.

[c61] 61. The method of claim 50, wherein:
the shared custom probe array comprises a synthesized or spotted array.

[c62] 62. The method of claim 50, further comprising the act of:
providing the user with the shared custom probe array.

[c63] 63. A system for processing customer orders for probe arrays, comprising:
an input manager constructed and arranged to receive a user selection of one or more probe arrays, or one or more probe set identifiers corresponding to one or more probe arrays, wherein the one or more probe arrays include a first probe array type, and further constructed and arranged to receive a user order for a first number of the first probe array type; and
a user-service manager constructed and arranged to:
(a) compare the first number to a nominal lot size corresponding to the first probe array type and to a number of unfulfilled orders for the first probe array type,
(b) add the first number to the unfulfilled orders to generate a total, and

(c) enable the user to be provided with the first number of probe arrays of the first probe array type when the total is within a production-lot range.

[c64] 64. The system of claim 63 , further comprising:
a production system constructed and arranged to produce the first number of probe arrays when enabled by the user-service manager.

[c65] 65. The system of claim 63 , further comprising:
a delivery system constructed and arranged to provide the user with the first number of probe arrays when enabled by the user-service manager.

[c66] 66. The system of claim 63 , wherein:
the user order includes a conditional offer to purchase.

[c67] 67. The system of claim 63 , wherein:
the input manager further is constructed and arranged to receive a bid from the user for a price that the user is willing to pay.

[c68] 68. The system of claim 63 , wherein:
the user selection is received over the Internet.

[c69] 69. The system of claim 63 , wherein:
the probe set identifiers comprise sequence information.

[c70] 70. The system of claim 63 , wherein:
the probe set identifiers are selected by the user from a predetermined list.

[c71] 71. The system of claim 70 , wherein:
each item on the list corresponds to either an EST, a gene, a splice variant of a gene, or a protein.

[c72] 72. The system of claim 63 , wherein:
one or more of the first number of probe arrays is constructed and arranged to diagnose a disease or medical condition.

[c73] 73. The system of claim 63 , wherein:
one or more of the first number of probe arrays comprises a synthesized or spotted array.

[c74] 74. A system for processing customer orders for shared custom probe arrays, comprising:
an input manager constructed and arranged to receive a user selection of one or more probe set identifiers that identify one or more potential probes; and
a user-service manager constructed and arranged to
(a) determine a first number of verified probe sets corresponding to the probe set identifiers,
(b) compare the first number to a nominal custom probe set size and to a number of unfulfilled orders for probe sets,
(c) add the first number to the unfulfilled orders to generate a total, and
(d) enable the user to be provided with the first number of verified probe sets on the shared custom probe array when the total is within a production range of probe sets.

[c75] 75. The system of claim 74 , further comprising:
a production system constructed and arranged to produce the shared custom probe array when enabled by the user-service manager.

[c76] 76. The system of claim 74 , further comprising:
a delivery system constructed and arranged to provide the user with the shared custom probe array when enabled by the user-service manager.

[c77] 77. The system of claim 74 , wherein:
the user order includes a conditional offer to purchase.

[c78] 78. The system of claim 74 , wherein:
the input manager further is constructed and arranged to receive a bid from the user for a price that the user is willing to pay.

[c79] 79. The system of claim 74 , wherein:
the user selection is received over the Internet.

[c80] 80. The system of claim 74 , wherein:
the probe set identifiers comprise sequence information.

[c81] 81. The system of claim 74 , wherein:

the probe set identifiers are selected by the user from a predetermined list and each item on the list corresponds to either an EST, a gene, a splice variant of a gene, or a protein.

[c82] 82. The system of claim 74 , wherein:
the shared custom probe array is constructed and arranged to diagnose a disease or medical condition.

[c83] 83. The system of claim 74 , wherein:
the shared custom probe array comprises a synthesized or spotted array.

[c84] 84. A method for providing custom probe arrays, comprising the acts of:
receiving a user selection of one or more probe set identifiers that each identify a plurality of potential probes;
determining verified probe sets of verified probes corresponding to the probe set identifiers;
generating a custom probe array design based, at least in part, upon the verified probe sets;
and
providing to the user one or more probe arrays based on the probe array design.